

REMARKS

Applicant provides the following remarks to respectfully rebut the rejections noted above.

Claims 1-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Stotts et al. ("Multiple Source Localisation Using GPS Technology and Received Arrival Time Structure Analysis in an Air-Deployed System", IEEE Journal of Oceanic Engineering, Vol. 22, No. 3, July 1997). In order to make a proper anticipation rejection, all of the limitations of the present claims must be disclosed or implied by the reference. Applicants assert that the Stotts et al. reference does not disclose many of the limitations set forth within the claims.

First, the system/method disclosed in the Stotts et al. reference records data and uses post-processing of that data in order to provide impact locations (see page 577, second paragraph). The present invention is designed to support "live" or "real-time" exercises. As such, the Stotts et al. reference does not disclose the use of the RF radio repeater system set forth in claims 1-8, because the Stotts et al. system does not contemplate "real-time" data transfer and use.

Second, a completely different calculation method is disclosed in the Stotts et al. reference than that claimed and described within the present application. Stotts et al. discloses a "matching" location technique where actual "leading edge" times are compared to theoretical/modeled "leading edge" times until a location is found with sufficient accuracy (page 577, section II). This method is extremely time consuming, and, as such, is not appropriate for "real-time" triangulation of impacts.

The present invention uses a technique of solving three or more simultaneous equations, employing a classical least squares method (set forth in claims 4-6) that is significantly less time intensive than the method disclosed in Stotts et al.

Third, Stotts et al. does not disclose any automated system for buoy recovery using the RF radio repeater system as described in claim 6. The Stotts et al reference specifically indicates that the buoys in the Stotts et al. system are expendable (page 576, first paragraph), and, therefore, no automated buoy recovery system would be contemplated. While the reference does indicate that some buoys were recovered for later testing during experimentation, no automatic recovery system was disclosed.

Fourth, Stotts et al. does not disclose any type of calculation for accumulated error as set forth in claims 7 and 16 of the present application. Stotts et al. uses the term "least-squares-type error", however, this term is used in conjunction with identifying which theoretical data set best matches the actual data (as discussed above). No accumulated error is calculated in the Stotts et al. reference.

Fifth, the Stotts et al. reference does not disclose any type of controller scheme or method for a system to conduct "live" firing missions or simulations as set forth in claims 9-17. Since the Stotts et al. system was not designed to conduct any type of "real-time" combat mission scenarios, there would be no impetus for such a control scheme to be employed.

While other limitations found within the claims are not found within the Stotts et al. reference, the above should provide more than enough information to show that the Stotts et al. reference may not be used to provide a proper anticipation rejection related to the present invention.

Claims 1-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Landis (NAVSEA News Wire). Also, claims 1-17 stand rejected under 35 U.S.C. § 102(b) as anticipated by Dunaway ("Virtual At Sea Training, presented at the National Defense Industrial Association 7th Annual Artillery Symposium, June 19, 2002). Applicants will address these two rejections together since the references disclose the same limitations without disclosing many of the limitations found within the present claims.

While applicants were unaware of these references, it is set forth in the present specification, in the background section, a general concept for a portable maritime acoustic scoring and simulation system for naval combat training was developed prior to the present invention. The specification also clearly indicates that the present invention relates to improvements to that general concept, including increasing the functionality of the RF radio repeater system and including improved control and impact location systems.

The only elements of the present invention that the above references disclose are the general concept of using buoys and a GPS system to locate impacts fired at a virtual target near the buoys, send information regarding the impacts, and using the GPS system to help triangulate impact locations. Other than the fact that in certain embodiments of the system, five buoys shaped in a pentagonal shape are used, all of this information is provided in the background section of the present application.

The following elements within the claims are not found within these two references. First, the RF radio repeater is not disclosed in the references. There is no mention of the RF radio repeater and its uses as described in claims 1, 6, 8, and 17.

Second, the location scheme described in claims 4, 5, and 7 is not disclosed in the references. There is no description or implication of how the location of the impacts is calculated in the references, other than that the GPS system provides some data to assist in this calculation.

Third, the control system described in claims 9-17 is not disclosed in the references. The control system and software that enable said system have not been disclosed within any publication outside the government. In fact, the control system technology and software have been recently licensed to the company that manufactures the components of the physical system for the government (METOCEAN--on whose website the examiner found a description of the hardware).

Again, many more specific elements within the claims are not found within the references, but the above should show that the references do not support an anticipation rejection.

Finally, claims 1- 7 stand rejected under 35 U.S.C. § 102(b) as anticipated by either Erwin ("Congress Ups Funding for Live-Fire Testing) or Navy Newstand ("Navy and Air Force Hit Virtual Bull's Eye at Sea"). These two references disclose even less of the elements set forth in the claim than the above discussed references. They also do not disclose information related to the RF radio repeater system or the specific location scheme as discussed in detail above and, therefore, are not proper references to support an anticipation rejection as the examiner suggests.

Accordingly, applicants believe that claims 1-17 are in condition for allowance and respectfully requests the examiner to withdraw all objections and rejections and allow said claims. Should the examiner need more information regarding this matter or

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have further suggestions regarding this application, feel free to call the undersigned at
301-744-5603.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Mark Homer", written over a horizontal line.

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